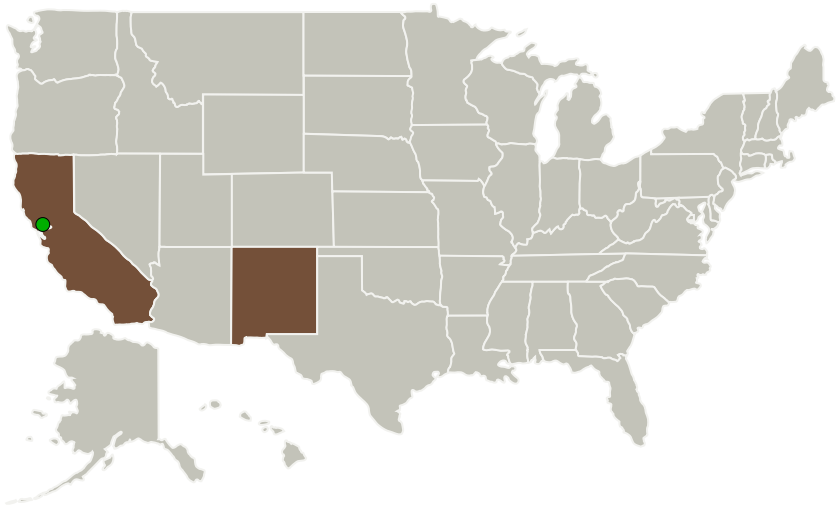
Real-Time Airborne Infra-Red Carbon Dioxide Analyzer, Phase I

Completed Technology Project (2015 - 2015)

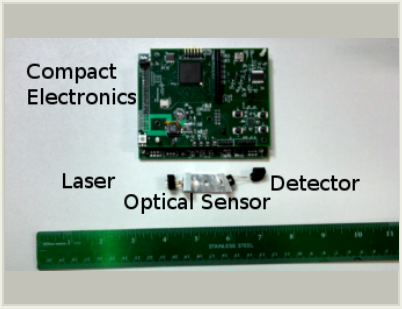
Project Introduction

Environmental species measurement on airborne atmospheric research craft is a demanding application for optical sensing techniques. Yet optical techniques offer many advantages including high-precision, fast response, and high species selectivity. Balloonsonde, kite, unmanned aerial vehicle (UAV), or glider deployment demands that sensors meet stringent size, weight and power requirements. Few measurements are as important, and none have entered into the public consciousness, like the need to quantify atmospheric carbon dioxide. Vista Photonics proposes to develop rugged, compact, power efficient prototype optical sensors capable of selectively measuring atmospheric carbon dioxide and water vapor with precision that rivals ground based instruments. The enabling technology for meeting stringent NASA mission requirements is a newly emergent infrared laser source that delivers the high-sensitivity of established optical absorption detection techniques with extreme compactness and low power draw.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Vista Photonics, Inc.	Lead Organization	Industry	Santa Fe, New Mexico
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California



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Primary U.S. Work Locations	
California	New Mexico

Project Transitions

June 2015: Project Start

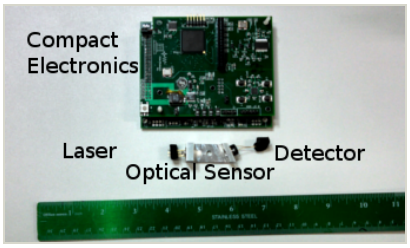
December 2015: Closed out

Closeout Summary: Real-Time Airborne Infra-Red Carbon Dioxide Analyzer, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/139389)*

Images



Briefing Chart Image
Real-Time Airborne Infra-Red Carbon Dioxide Analyzer, Phase I *(https://techport.nasa.gov/image/131431)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Vista Photonics, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

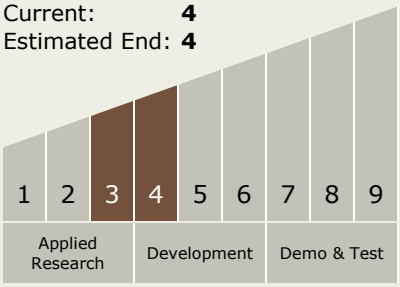
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
William Wood

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System